

This publication, including photographs, illustrations and software, is under the protection of international copyright laws, with all rights reserved. Neither this user's guide, nor any of the material contained herein, may be reproduced without the express written consent of the manufacturer.

The information in this document is subject to change without notice. The manufacturer makes no representations or warranties with respect to the contents hereof and specifically disclaims any implied warranties of merchantability or fitness for any particular purpose. Further, the manufacturer reserves the right to revise this publication and to make changes from time to time in the content hereof without obligation of the manufacturer to notify any person of such revision or changes.

### **Trademarks**

IBM, VGA, and PS/2 are registered trademarks of International Business Machines.

MMX, Pentium, Pentium-II, Pentium-III, Celeron are registered trademarks of Intel Corporation.

Microsoft, MS-DOS and Windows XP/Vista/7 are registered trademarks of Microsoft Corporation.

AMI is a trademark of American Megatrends Inc.

It has been acknowledged that other brands or product names in this manual are trademarks or the properties of their respective owners.

### **Static Electricity Precautions**

1. Don't take this motherboard and components out of their original static-proof package until you are ready to install them.
2. While installing, please wear a grounded wrist strap if possible. If you don't have a wrist strap, discharge static electricity by touching the bare metal of the system chassis.
3. Carefully hold this motherboard by its edges. Do not touch those components unless it is absolutely necessary. Put this motherboard on the top of static-protection package with component side facing up while installing.

### **Pre-Installation Inspection**

1. Inspect this motherboard whether there are any damages to components and connectors on the board.
2. If you suspect this motherboard has been damaged, do not connect power to the system. Contact your motherboard vendor about those damages.

**Copyright © 2011  
All Rights Reserved  
P65G Series, V1.0  
October 2011**

## Table of Contents

<b>Trademark .....</b>	<b>i</b>
<i>Static Electricity Precautions .....</i>	<i>i</i>
<i>Pre-Installation Inspection .....</i>	<i>i</i>
<b>Chapter 1: Introduction .....</b>	<b>1</b>
<i>Key Features .....</i>	<i>1</i>
<i>Package Contents .....</i>	<i>4</i>
<b>Chapter 2: Motherboard Installation .....</b>	<b>5</b>
<i>Motherboard Components .....</i>	<i>6</i>
<i>I/O Ports .....</i>	<i>7</i>
<i>Installing the Processor .....</i>	<i>8</i>
<i>Installing Memory Modules .....</i>	<i>10</i>
<i>Jumper Settings .....</i>	<i>12</i>
<i>Install the Motherboard .....</i>	<i>14</i>
<i>Connecting Optional Devices .....</i>	<i>15</i>
<i>Install Other Devices .....</i>	<i>18</i>
<i>Expansion Slots .....</i>	<i>19</i>
<b>Chapter 3: BIOS Setup Utility .....</b>	<b>21</b>
<i>Introduction .....</i>	<i>21</i>
<i>Running the Setup Utility .....</i>	<i>21</i>
<i>Main Setup Page .....</i>	<i>24</i>
<i>Advanced Setup Page .....</i>	<i>25</i>
<i>Chipset Setup Page .....</i>	<i>34</i>
<i>Tweak Setup Page .....</i>	<i>41</i>
<i>Boot Setup Page .....</i>	<i>47</i>
<i>Security Setup Page .....</i>	<i>49</i>
<i>Exit Setup Page .....</i>	<i>50</i>
<b>Chapter 4: Software &amp; Applications .....</b>	<b>52</b>
<i>Introduction .....</i>	<i>52</i>
<i>Installing Support Software .....</i>	<i>52</i>
<i>Bundled Software Installation .....</i>	<i>54</i>
<b>Chapter 5: Trouble Shooting .....</b>	<b>55</b>
<i>Start up problems during assembly.....</i>	<i>55</i>
<i>Start up problems after prolong use.....</i>	<i>56</i>
<i>Maintenance and care tips.....</i>	<i>56</i>
<i>Basic Troubleshooting Flowchart.....</i>	<i>57</i>

### Notice:

- 1 Owing to Microsoft's certifying schedule is various to every supplier, we might have some drivers not certified yet by Microsoft. Therefore, it might happen under Windows XP that a dialogue box (shown as below) pop out warning you this software has not passed Windows Logo testing to verify its compatibility with Windows XP. Please rest assured that our RD department has already tested and verified these drivers. Just click the "Continue Anyway" button and go ahead the installation.



# Chapter 1 Introduction

This motherboard has a **LGA1155 socket** for latest **2<sup>nd</sup> Generation Intel® Core™ i7/i5/i3 series processor/Intel® Pentium®/Celeron®** processors for high-end business or personal desktop markets.

This motherboard is based on **Intel® H61 Express Chipset** for best desktop platform solution. H61 is a single-chip, highly integrated, high performance Hyper-Threading peripheral controller, unmatched by any other single chip device controller. This motherboard supports up to 16 GB of system memory with dual channel DDR3 1333/1066 SDRAM. High resolution graphics via **PCI Express x16** slot, intended for Graphics Interface, is fully compliant to the PCI Express Base Specification revision 2.0. In addition, two **PCI Express** slots are supported. It implements an **EHCI** (Enhanced Host Controller Interface) compliant interface that provides eight **USB 2.0** ports (four USB 2.0 ports at the back panel and two USB 2.0 headers support additional four USB 2.0 ports).

The motherboard is equipped with advanced full set of I/O ports in the rear panel, including PS/2 mouse and PS/2 keyboard connectors, one D\_sub (VGA) port, one Lan port, four USB 2.0 ports, and audio jacks for microphone, line-in and 6-ch line-out.

In addition, this motherboard supports four SATA 3.0 Gb/s connectors for expansion.

## Key Features

The key features of this motherboard include:

### LGA 1155 Socket Processor

- Accommodates latest 2<sup>nd</sup> Generation Intel® Core™ Family processor/ Intel® Pentium®/Celeron® processors
- Supports “Hyper-Threading” technology CPU
- One PCI Express x16 Gen2 port supporting up to 5 GB/s direction peak bandwidth

“Hyper-Threading” technology enables the operating system into thinking it’s hooked up to two processors, allowing two threads to be run in parallel, both on separate “logical” processors within the same physical processor.

### Chipset

The Intel® H61 Chipset is a single-chip with proven reliability and performance.

- High performance Host Interface: Supports the **LGA1155 socket** for latest **2<sup>nd</sup> Generation Intel® Core™ Family processor/Intel® Pentium®/Celeron®** processors
- System Memory Controller Support: DDR3 SDRAM with up to maximum memory of 16 GB
- Support two PCI Express x1 slots
- Integrate Serial ATA Host Controller with Data transfer rates up to 3.0 Gb/s
- Serial Peripheral Interface (SPI) support
- Integrated Graphics Support with PAVP 1.5
- Intel® High Definition Audio Controller
- USB 2.0: Integrated USB 2.0 interface, supporting up to eight functional ports

### Memory Support

- Two 240-pin DIMM sockets for DDR3 1333/1066 SDRAM with Dual-channel architecture
- Maximum installed memory is 16 GB

### Expansion Slots

- One PCI Express x16 slot
- Two PCI Express x 1 slots

### Serial ATA

- Serial ATA Controller
- Transfer rate exceedig best ATA (3.0 Gb/s) with scalability to higher rates
- Low pin count for both host and devices

### Audio

- 5.1+2 Channel High Definition Audio Codec
- Meets Microsoft WLP3.x (Windows Logo Program) audio requirements
- All DACs supports 44.1k/48k/96k/192kHz sample rate
- Software selectable 2.5V/3.2V/4.0V VREFOUT
- Direct Sound 3D compatible
- Power Support: Digital: 3.3V; Analog: 5.0V

### Onboard LAN (Optional)

<ul style="list-style-type: none"><li>• Supports PCI Express™ 1.1</li><li>• Integrated 10/100/1000 transceiver</li><li>• Wake-on-LAN and remote wake-up support</li></ul>
<ul style="list-style-type: none"><li>• Supports PCI Express™ 1.1</li><li>• Integrated 10/100 transceiver</li><li>• Wake-on-LAN and remote wake-up support</li></ul>

### Onboard I/O Ports

- Two PS/2 ports for mouse and keyboard
- One VGA port
- One LAN port
- Four USB 2.0 ports
- Audio jacks for microphone, line-in and 6-ch line-out

### BIOS Firmware

The motherboard uses AMI BIOS that enables users to configure many system features including the following:

- Power management
- Wake-up alarms
- CPU parameters
- CPU and memory timing
- Graphic parameters

The firmware can also be used to set parameters for different processor clock speeds.

### Dimensions

- Micro ATX form factor of 225x170 mm

**Note:** Hardware specifications and software items are subject to change without notification.

### Package Contents

Your motherboard package ships with the following items:

- ☐ The motherboard
- ☐ The User's Guide
- ☐ Two Serial ATA cables
- ☐ The Software support disk

### Optional Accessories

You can purchase the following optional accessories for this motherboard.

- ☐ The Extended USB module
- ☐ The Serial ATA power cable

**Note:** You can purchase your own optional accessories from the third party, but please contact your local vendor on any issues of the specification and compatibility.

## Chapter 2 Motherboard Installation

To install this motherboard in a system, please follow these instructions in this chapter:

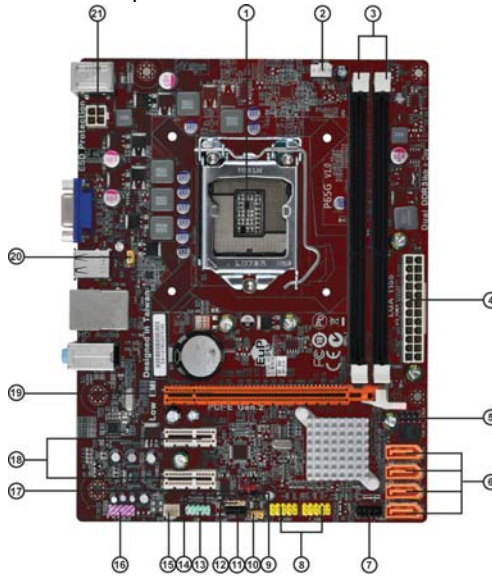
- ☐ Identify the motherboard components
- ☐ Install a CPU
- ☐ Install one or more system memory modules
- ☐ Make sure all jumpers and switches are set correctly
- ☐ Install this motherboard in a system chassis (case)
- ☐ Connect any extension brackets or cables to headers/connectors on the motherboard
- ☐ Install peripheral devices and make the appropriate connections to headers/connectors on the motherboard

### **Note:**

1. Before installing this motherboard, make sure jumper CLR\_CMOS is under Normal setting. See this chapter for information about locating CLR\_CMOS and the setting options.
2. Never connect power to the system during installation; otherwise, it may damage the motherboard.



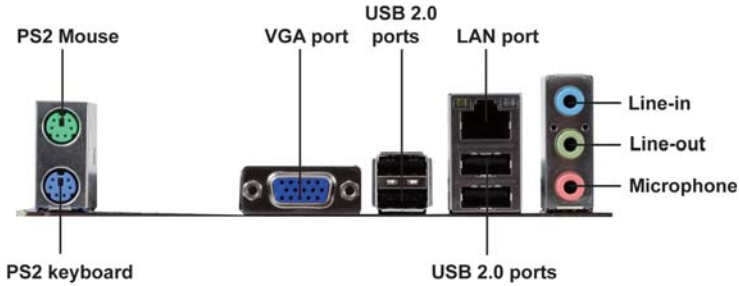
## Motherboard Components



LABEL	COMPONENTS
1. CPU Socket	LGA1155 socket for new 2 <sup>nd</sup> Generation Intel® Core™ i7/i5/i3 series processor/Intel® Pentium®/Celeron® processors
2. CPU_FAN	4-pin CPU cooling fan connector
3. DDR3_1~2	240-pin DDR3 SDRAM slots
4. ATX_POWER	Standard 24-pin ATX power connector
5. SPI_DEBUG	SPI debug header-for factory use only
6. SATA1~4	Serial ATA 3.0 Gb/s connectors
7. F_PANEL	Front panel switch/LED header
8. F_USB1~2	Front panel USB 2.0 headers
9. CASE	CASE open header
10. USBPWR_F1	Front Panel USB power select jumper
11. SPK	Speaker header
12. LDC	Debug card header
13. COM	Onboard serial port header
14. ME_UNLOCK	ME unlock header-for factory use only
15. SYS_FAN	3-pin system cooling fan connector
16. F_AUDIO	Front panel audio header
17. CLR_CMOS	Clear CMOS jumper
18. PCIE1~2	PCI Express x1 slot
19. PCIE16	PCI Express slot for graphics interface
20. USBPWR_R1	Rear USB/PS2 power select jumper
21. ATX12V	4-pin +12V power connector

### I/O Ports

The illustration below shows a side view of the built-in I/O ports on the motherboard.



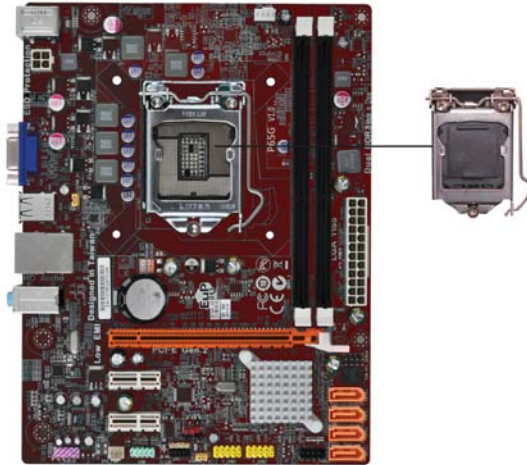
<b>PS/2 Mouse</b>	Use the upper PS/2 port to connect a PS/2 pointing device.
<b>PS/2 Keyboard</b>	Use the lower PS/2 port to connect a PS/2 keyboard.
<b>VGA Port</b>	Connect your monitor to the VGA port.
<b>LAN Port</b>	Connect an RJ-45 jack to the LAN port to connect your computer to the Network.
<b>USB 2.0 Ports</b>	Use the USB 2.0 ports to connect USB 2.0 devices.
<b>Audio Ports</b>	Use the three audio jacks to connect audio devices. The first jack is for stereo Line-In signal, the second jack is for stereo Line-Out signal, and the third jack for Microphone.

### Installing the Processor

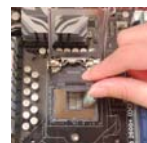
This motherboard has a **LGA1155** socket for latest **2<sup>nd</sup> Generation Intel® Core™ Family** processors. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

#### CPU Installation Procedure

Follow these instructions to install the CPU:



- A. Disengaging of the Load Lever
  - Press the hook of lever down and pull it to the right side to release it from retention tab.
- B. Opening of the Load Plate
  - Lift the tail of the load lever.
  - Rotate the load plate to fully open position.
- C. Removing the Cap
  - Be careful not to touch the contact at any time.



- D. Inserting the Package
- Grasp the package. Ensure to grasp on the edge of the substrate.
  - Make sure pin 1 indicator is on your bottom-left side.
  - Aim at the socket and place the package carefully into the socket by purely vertical motion.
- E. Closing the Load Plate
- Rotate the load plate onto the package IHS (Intergraded Heat Spreader).
  - Engage the load lever while pressing down lightly onto the load plate.
  - Secure the load lever with the hook under retention tab.
- F. Fasten the cooling fan supporting base onto the CPU socket on the motherboard.
- G. Make sure the CPU fan is plugged to the CPU fan connector. Please refer to the CPU cooling fan user's manual for more detail installation procedure.



*\* For reference only*

**Note 1:** To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 3800 rpm at least. CPU fan and heatsink installation procedures may vary with the type of CPU fan/ heatsink supplied. The form and size of fan/heatsink may also vary.

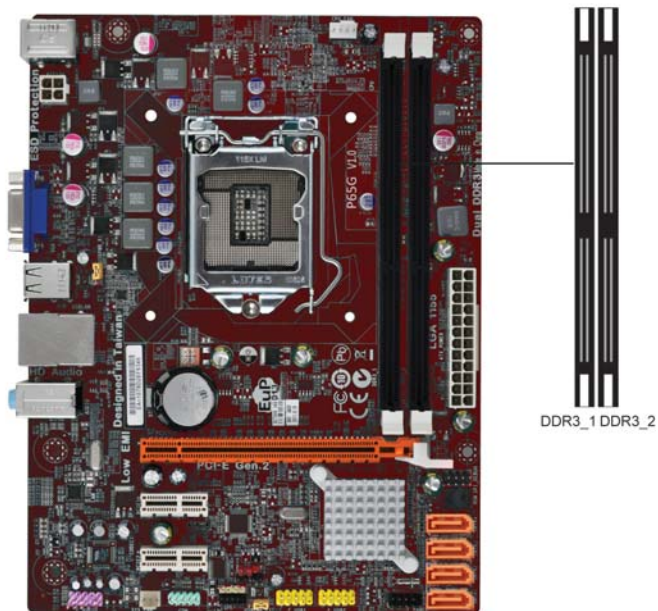
**Note 2:** The fan connector supports the CPU cooling fan of 1.1A~2.2A (26.4W max.) at +12V.

**Note 3:** Do Not remove the CPU cap from the socket before installing a CPU.

**Note 4:** Return Material Authorization (RMA) requests will be accepted only if the motherboard comes with the cap on the LGA1155 socket.

### Installing Memory Modules

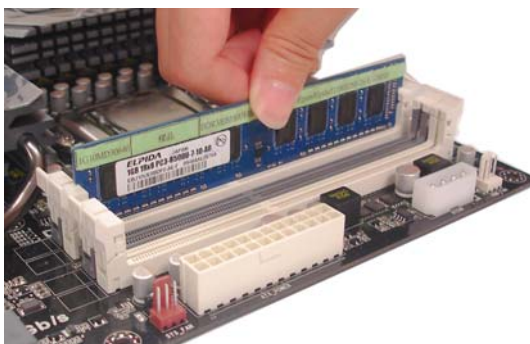
This motherboard accommodates two 240-pin DIMM sockets for unbuffered **DDR3 1333/1066** memory modules, and maximum 16 GB installed memory.



### Memory Module Installation Procedure

These modules can be installed with up to 16 GB system memory. Refer to the following to install the memory module.

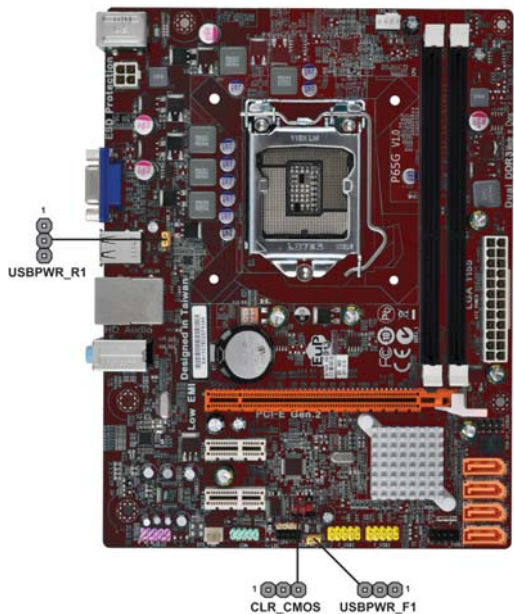
1. Push down the latches on both sides of the DIMM socket.
2. Align the memory module with the socket. There is a notch on the DIMM socket that you can install the DIMM module in the correct direction. Match the cutout on the DIMM module with the notch on the DIMM socket.
3. Install the DIMM module into the socket and press it firmly down until it is seated correctly. The socket latches are levered upwards and latch on to the edges of the DIMM.
4. Install any remaining DIMM modules.



*\* For reference only*

Jumper Settings

Connecting two pins with a jumper cap is SHORT; removing a jumper cap from these pins, OPEN.



CLR\_CMOS: Clear CMOS Jumper

Use this jumper to clear the contents of the CMOS memory. You may need to clear the CMOS memory if the settings in the Setup Utility are incorrect and prevent your motherboard from operating. To clear the CMOS memory, disconnect all the power cables from the motherboard and then move the jumper cap into the CLEAR setting for a few seconds.

1 000  
CLR\_CMOS

Function	Jumper Setting
Normal	Short Pins 1-2
Clear CMOS	Short Pins 2-3

**Note:** To avoid the system instability after clearing CMOS, we recommend users to enter the main BIOS setting page to “Load Optimal Defaults” and then “Save Changes and Exit”.

### USBPWR\_F1: FRONT PANEL USB POWER SELECT Jumper



Function	Jumper Setting
VCC	Short Pins 1-2
5VSB	Short Pins 2-3

### USBPWR\_R1: REAR USB PS/2 POWER SELECT Jumper

Use this jumper to set the Rear USB PS/2 Power function.



Function	Jumper Setting
VCC	Short Pins 1-2
5VSB	Short Pins 2-3

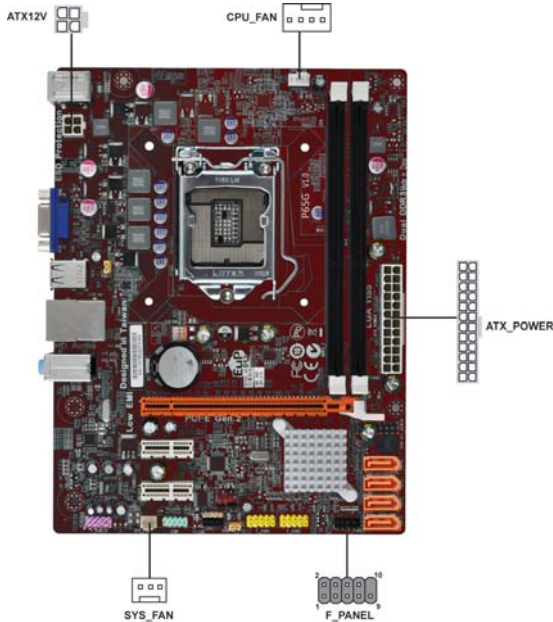
**Note:** 1. Make sure the power supply provides enough SB5V voltage before selecting the SB5V function.  
 2. To wake up the computer by USB/PS2 KB/Mouse in S3 status, users have to place the USBPWR\_F & USBPWR\_R cap onto 2-3 pin instead of 1-2 as default, and then press into BIOS "Power Management Setup" page to choose the functions (USB/PS2KB/MS) you want to enable.



### Install the Motherboard

Install the motherboard in a system chassis (case). The board is a Micro ATX size motherboard. You can install this motherboard in an ATX case. Make sure your case has an I/O cover plate matching the ports on this motherboard.

Install the motherboard in a case. Follow the case manufacturer's instructions to use the hardware and internal mounting points on the chassis.



Connect the power connector from the power supply to the **ATX\_POWER** connector on the motherboard. The **ATX12V** is a +12V connector for CPU Vcore power.

If there is a cooling fan installed in the system chassis, connect the cable from the cooling fan to the **CPU\_FAN** fan power connector on the motherboard.

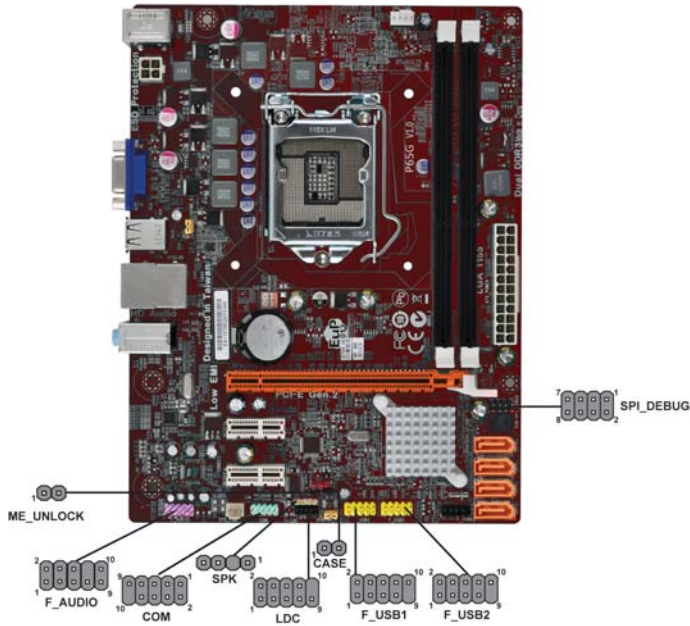
Connect the case switches and indicator LEDs to the **F\_PANEL** header.

Here is a list of the F\_PANEL pin assignments.

Pin	Signal	Pin	Signal
1	HD_LED_P(+)	2	FP PWR/SLP(+)
3	HD_LED_N(-)	4	FP PWR/SLP(-)
5	RESET_SW_N(-)	6	POWER_SW_P(+)
7	RESET_SW_P(+)	8	POWER_SW_N(-)
9	RSVD_DNU	10	KEY

### Connecting Optional Devices

Refer to the following for information on connecting the motherboard's optional devices:



#### SPK: Speaker Header

Connect the cable from the PC speaker to the SPK header on the motherboard.

Pin	Signal	Pin	Signal
1	VCC	2	Key
3	NC	4	Signal

#### LDC: Debug Card header

This is a header that can be used to support the LPC debug card.

Pin	Signal	Pin	Signal
1	LAD3	2	+3.3V
3	LAD2	4	LFRAME#
5	LAD1	6	RST
7	LAD0	8	CLK
9	GND	10	KEY

### COM: Onboard Serial Port Header

Connect a serial port extension bracket to this header to add a second serial port to your system.

Pin	Signal	Pin	Signal
1	DCDB	2	SINB
3	SOUTB	4	DTRB
5	GND	6	DSRB
7	RTSB	8	CTSB
9	RI	10	KEY

### F\_AUDIO: Front Panel Audio Header

This header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access.

Pin	Signal	Pin	Signal
1	PORT1L	2	GND
3	PORT1R	4	PRESENCE#
5	PORT2R	6	Sense1_return
7	SENSE_SEND	8	KEY
9	PORT2L	10	Sense2_return

### F\_USB1~2: Front Panel USB Headers

The motherboard has four USB ports installed on the rear edge I/O port array. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB header F\_USB to connect the front-mounted ports to the motherboard.

Pin	Signal	Pin	Signal
1	USBPWR0	2	USBPWR1
3	USB_FP_P0(-)	4	USB_FP_P1(-)
5	USB_FP_P0(+)	6	USB_FP_P1(+)
7	GROUND	8	GROUND
9	KEY	10	NC

1. Locate the F\_USB header on the motherboard.
2. Plug the bracket cable onto the F\_USB header.
3. Remove a slot cover from one of the expansion slots on the system chassis. Install an extension bracket in the opening. Secure the extension bracket to the chassis with a screw.

### **CASE: Chassis Intrusion Detect Header**

This detects if the chassis cover has been removed. This function needs a chassis equipped with intrusion detection switch and needs to be enabled in BIOS.

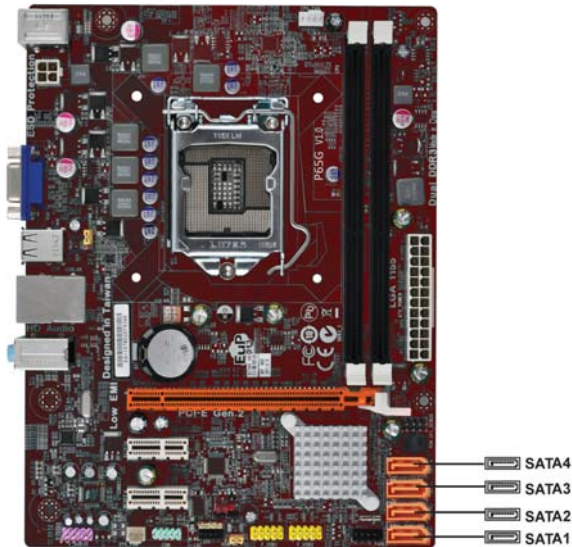
Pin	Function
Short	Chassis cover is removed
Open	Chassis cover is closed

### **ME\_UNLOCK: ME Unlock Header**

Pin	Function
Short	Unlock
Open	Lock

### Install Other Devices

Install and connect any other devices in the system following the steps below.



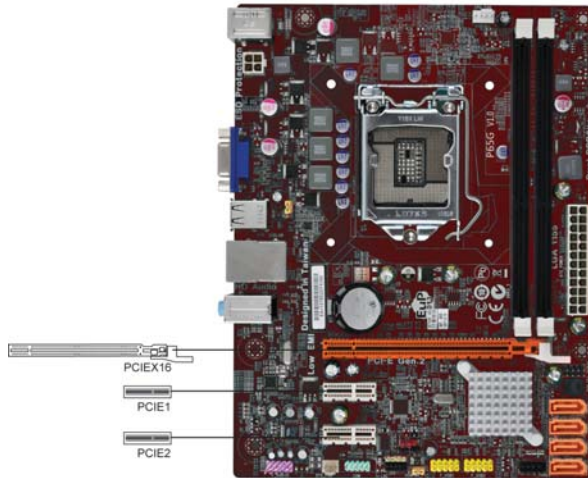
### Serial ATA Devices

The **Serial ATA (Advanced Technology Attachment)** is the standard interface for the IDE hard drives, which is designed to overcome the design limitations while enabling the storage interface to scale with the growing media rate demands of PC platforms. It provides you a faster transfer rate of **3.0 Gb/s**. If you have installed a Serial ATA hard drive, you can connect the Serial ATA cables to the Serial ATA hard drive or the connector on the motherboard.

On the motherboard, locate the Serial ATA connectors **SATA1~4**, which support new Serial ATA devices for the highest data transfer rates, simpler disk drive cabling and easier PC assembly.

### Expansion Slots

This motherboard has one PCI Express x16, two PCI Express x1 slots.



Follow the steps below to install a PCI Express expansion card.

- 1 Locate the PCI Express slot on the motherboard.
- 2 Remove the blanking plate of the slot from the system chassis.
- 3 Install the edge connector of the expansion card into the slot. Ensure the edge connector is correctly seated in the slot.
- 4 Secure the metal bracket of the card to the system chassis with a screw.



*\* For reference only*

### **PCI Express x16 Slot**

You can install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification revision 2.0.

### **PCI Express Slots**

You can install two external PCI Express graphics cards that are fully compliant to the PCI Express Base Specification revision 2.0.

## Chapter 3 BIOS Setup Utility

### Introduction

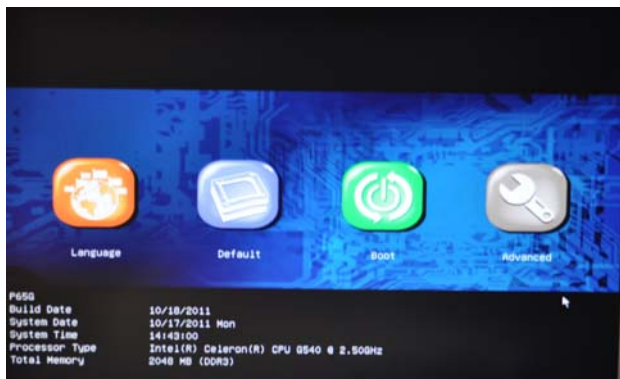
The BIOS Setup Utility records settings and information of your computer, such as date and time, the type of hardware installed, and various configuration settings. Your computer applies the information to initialize all the components when booting up and basic functions of coordination between system components.

If the Setup Utility configuration is incorrect, it may cause the system to malfunction. It can even stop your computer booting properly. If it happens, you can use the clear CMOS jumper to clear the CMOS memory which has stored the configuration information; or you can hold down the **Page Up** key while rebooting your computer. Holding down the **Page Up** key also clears the setup information.

You can run the setup utility and manually change the configuration. You might need to do this to configure some hardware installed in or connected to the motherboard, such as the CPU, system memory, disk drives, etc.

### Running the Setup Utility

Every time you start your computer, a message appears on the screen before the operating system loading that prompts you to “*Hit <DEL> if you want to run SETUP*”. Whenever you see this message, press the **Delete** key, and the Main menu page of the Setup Utility appears on your monitor.



You can use cursor arrow keys to highlight anyone of options on the main menu page. Press **Enter** to select the highlighted option. Press the **Escape** key to leave the setup utility. Press **+/-** to modify the selected field's values.



Some options on the main menu page lead to tables of items with installed values that you can use cursor arrow keys to highlight one item, and press **PgUp** and **PgDn** keys to cycle through alternative values of that item. The other options on the main menu page lead to dialog boxes requiring your answer OK or Cancel by selecting the **[OK]** or **[Cancel]** key.

If you have already changed the setup utility, press **F4** to save those changes and exit the utility. Press **F1** to display a screen describing all key functions. Press **F3** to load optimal settings.

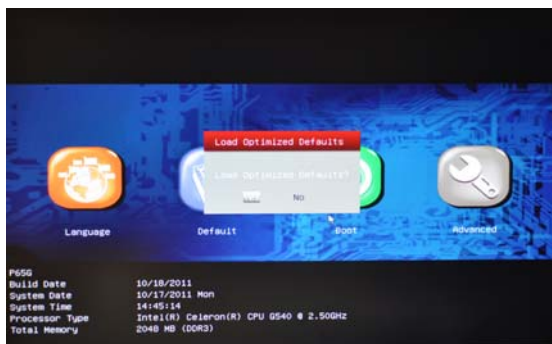
### *Language*

Select the language icon and press <Enter> or double click the left key of the mouse to display the following screen. Then you can choose the language which displays in the following screen.



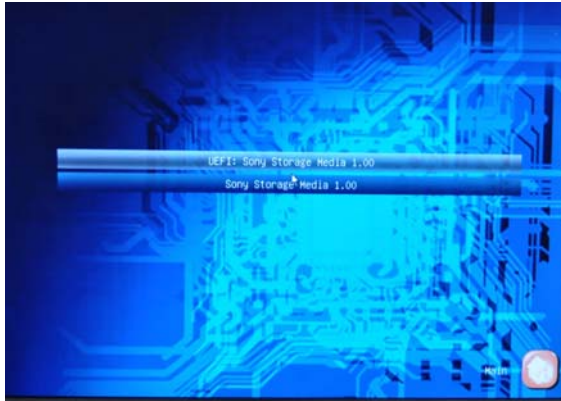
### *Default*

Select the default icon and press <Enter> or double click the left key of the mouse to display the following screen. Then you can load optimized defaults or not.



### ***Boot***

Select the boot icon and press <Enter> or double click the left key of the mouse to display the following screen. Then you can choose the boot device.



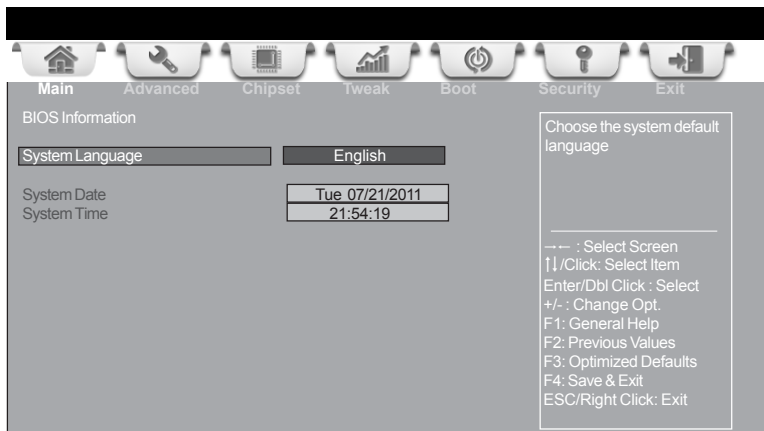
### ***Advanced***

Select the advanced icon and press <Enter> or double click the left key of the mouse to display the following screen.



### Main Setup Page

This page displays a table of items defining basic information of your system.



### Multi-Language BIOS

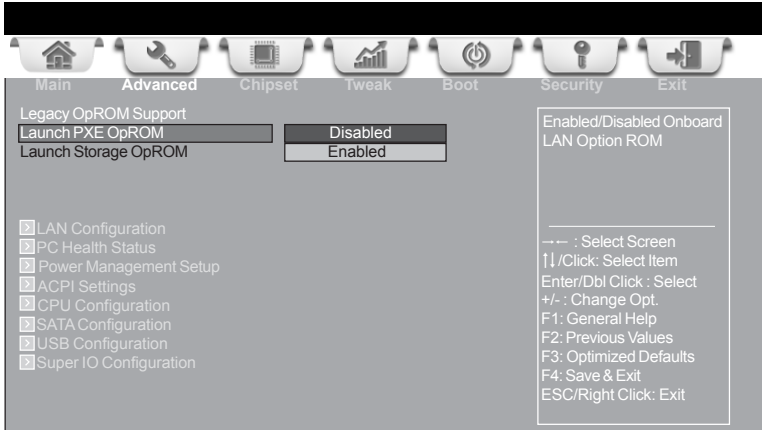
Multi-language BIOS allows you to see and set up the BIOS with your native language. It helps Non-English users to solve the problem of setting up the BIOS and achieve extra system performance easily.

### Date & Time

The Date and Time items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

## Advanced Setup Page

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.



### Launch PXE OpROM (Disabled)

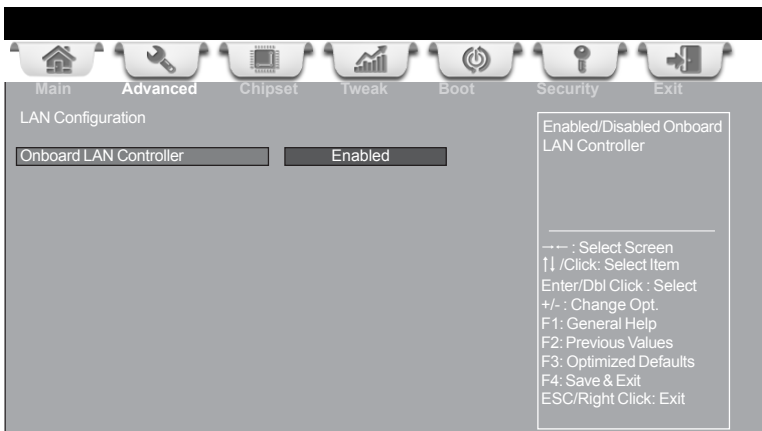
Use this item to enable or disable the PXE OpROM.

### Launch Storage OpROM (Enabled)

Use this item to enable or disable the Storage OpROM.

## LAN Configuration

The item in the menu shows the LAN-related information that the BIOS automatically detects.



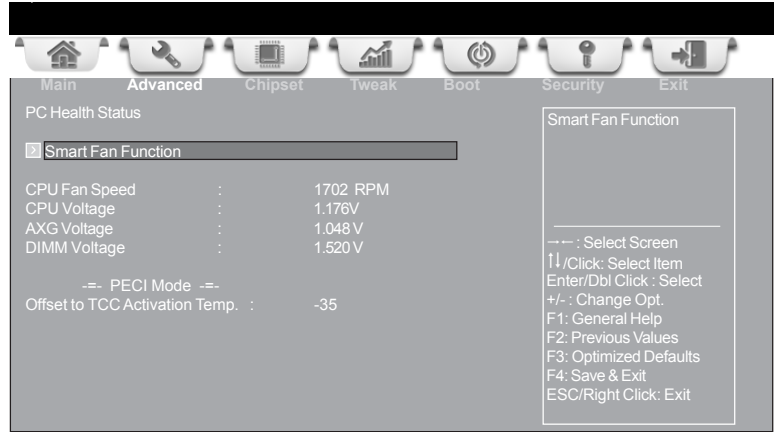
Onboard LAN Controller (Enabled)

Use this item to enable or disable the Onboard LAN.

Press <Esc> to return to the Advanced Menu page.

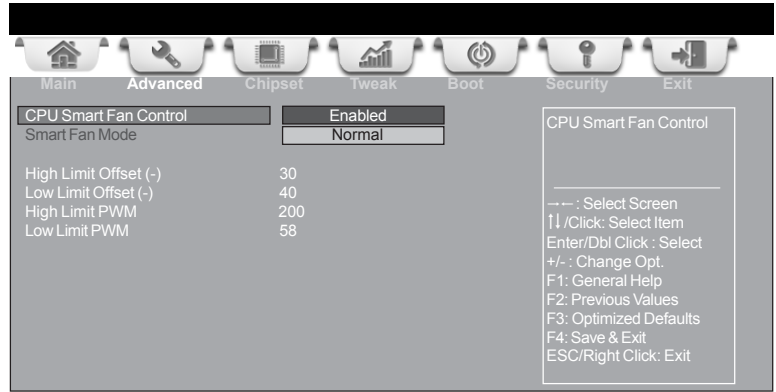
PC Health Status

On motherboards support hardware monitoring, this item lets you monitor the parameters for critical voltages, temperatures and fan speeds.



►Smart Fan Function

Scroll to this item and press <Enter> to view the following screen:



CPU SMART FAN Control (Enabled)

This item allows you to enable/disable the control of the CPU fan speed by changing the fan voltage.

### **SMART Fan Mode (Normal)**

This item allows you to select the fan mode (Normal, Quiet, Silent, or Manual) for a better operation environment. If you choose Normal mode, the fan speed will be auto adjusted depending on the CPU temperature. If you choose Quite mode, the fan speed will be auto minimized for quiet environment. If you choose Silent mode, the fan speed will be auto restricted to make system more quietly. If you choose Manual mode, the fan speed will be adjust depending on users' parameters.

Press <Esc> to return to the PC Health Status page.

### **System Component Characteristics**

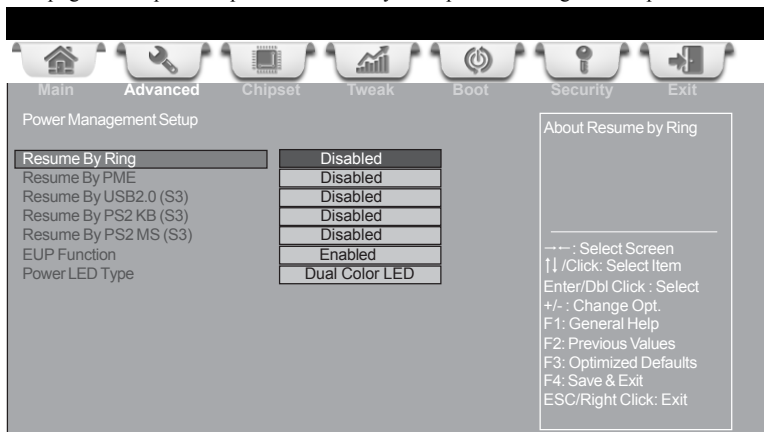
These items display the monitoring of the overall inboard hardware health events, such as System & CPU temperature, CPU & DIMM voltage, CPU & system fan speed,... etc.

- CPU Fan Speed
- CPU Voltage
- AXG Voltage
- DIMM Voltage

Press <Esc> to return to the Advanced Setup page.

### Power Management Setup

This page sets up some parameters for system power management operation.



#### Resume By RING (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the Modem. You must use an ATX power supply in order to use this feature.

#### Resume By PME (Disabled)

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the PCI Modem or PCI LAN card. You must use an ATX power supply in order to use this feature. Use this item to do wake-up action if inserting the PCI card.

#### Resume By USB2.0 (S3) (Disabled)

This item allows you to enable/disable the USB device wakeup function from S3 mode.

#### Resume By PS2 KB (S3) (Disabled)

This item enables or disables you to allow keyboard activity to awaken the system from power saving mode.

#### Resume By PS2 MS (S3) (Disabled)

This item enables or disables you to allow mouse activity to awaken the system from power saving mode.

#### EUP Support (Enabled)

This item allows user to enable or disable EUP support.

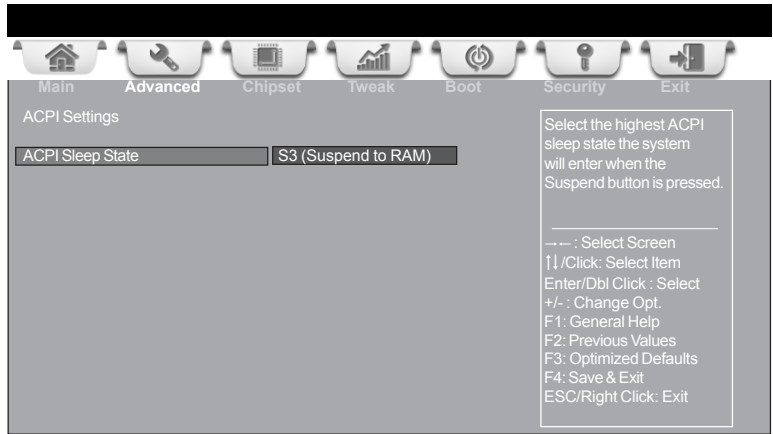
#### Power LED Type (Dual Color LED)

This item shows the type of the power LED.

Press <Esc> to return to the Advanced Setup page.

ACPI Setting

The item in the menu shows the highest ACPI sleep state when the system enters suspend.



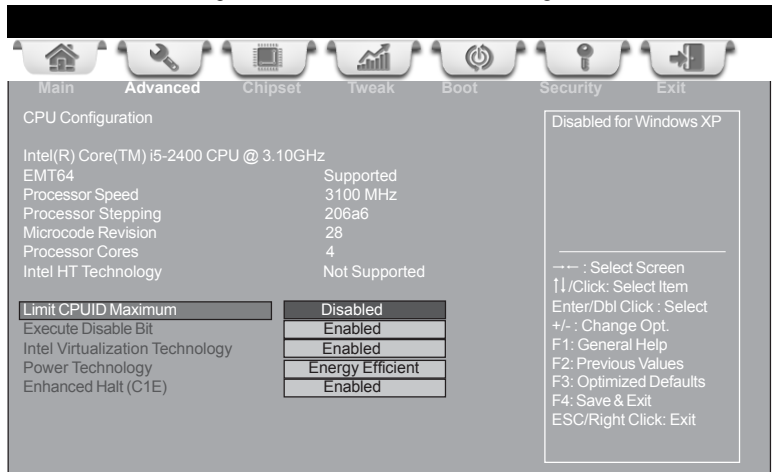
ACPI Sleep State (S3(Suspend to RAM))

This item allows user to enter the ACPI S3 (Suspend to RAM) Sleep State(default).

Press <Esc> to return to the Advanced Setup page.

CPU Configuration

Scroll to this item and press <Enter> to view the following screen:





### **Intel(R) Core(TM) i5-2400 CPU 0 @ 3.10GHz**

This is display-only field and displays the information of the CPU installed in your computer.

### **EMT64 (Supported)**

This item shows the computer supports EMT64.

### **Processor Speed (3100MHz)**

This item shows the current processor speed.

### **Processor Stepping (206a6)**

This item shows the processor stepping version.

### **Microcode Revision (28)**

This item shows the Microcode version.

### **Processor Cores (4)**

This item shows the core number of the processor.

### **Intel HT Technology (Not Supported)**

This item shows that your computer supports Intel HT technology or not.

### **Limit CPUID Maximum (Disabled)**

Use this item to enable or disable the maximum CPUID value limit.

### **Execute Disable Bit (Enabled)**

This item allows the processor to classify areas in memory by where application code can execute and where it cannot. When a malicious worm attempts to insert code in the buffer, the processor disables code execution, preventing damage or worm propagation. Replacing older computers with Execute Disable Bit enabled systems can halt worm attacks, reducing the need for virus related repair.

### **Intel Virtualization Technology (Disabled)**

When disabled, a VMM cannot utilize the additional hardware capabilities provided by VANDOR Pool Technology.

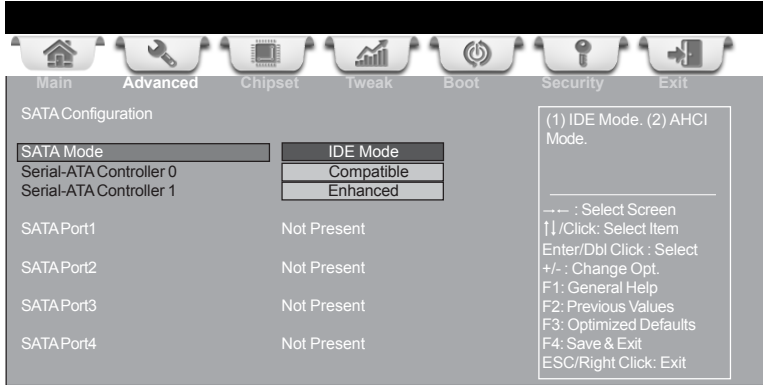
### **Enhanced Halt(C1E) (Enabled)**

This item enables or disables enhanced halt.

Press <Esc> to return to the Advanced Setup page.

## SATA Configuration

Use this item to show the mode of serial-ATA configuration options.



### SATA Mode (IDE Mode)

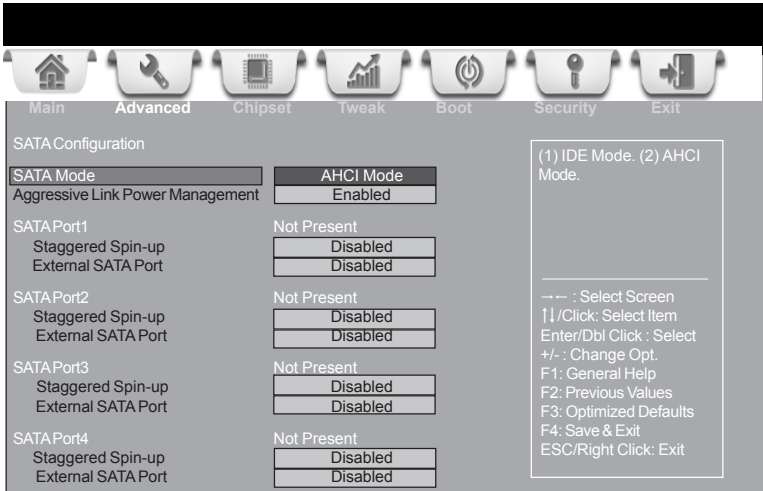
Use this item to select SATA mode.

### Serial-ATA Controller 0/1 (Compatible/Enhanced)

Use this item to select the Serial-ATA controller options: Disabled, Compatible, Enhanced.

### SATA Port 1~4 (Not Present)

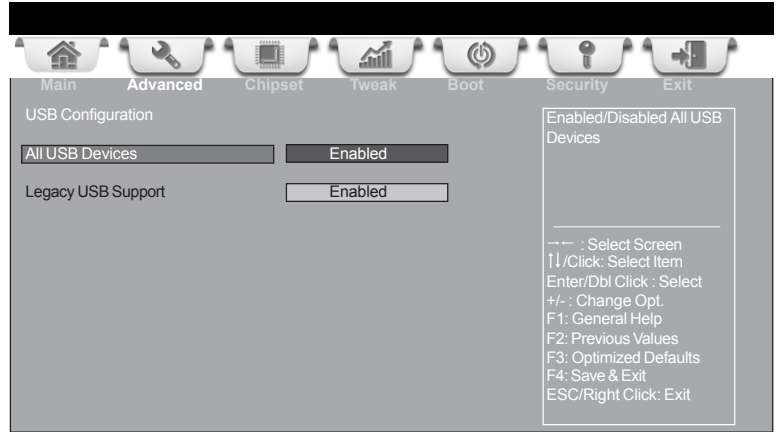
This motherboard supports four SATA channel and each channel allows one SATA device to be installed. Use these items to configure each device on the SATA channel.



Press <Esc> to return to the Advanced Setup page.

USB Configuration

Scroll to this item and press <Enter> to view the following screen:



All USB Devices (Enabled)

Use this item to enable or disable all USB devices.

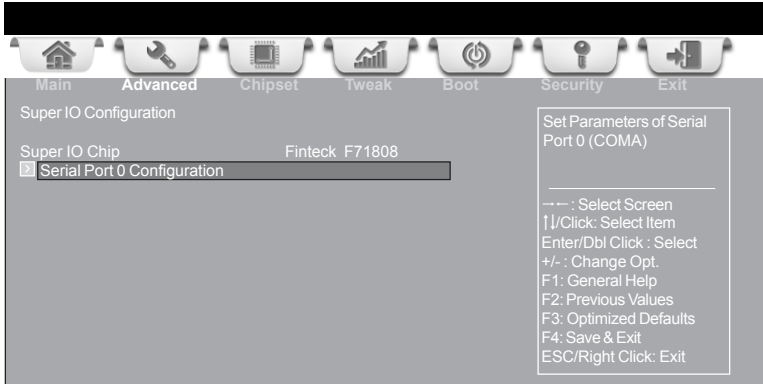
Legacy USB Support (Enabled)

Use this item to enable or disable support for legacy USB devices. Setting to Audio allows the system to detect the presence of the USB device at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

Press <Esc> to return to the Advanced Setup page.

## Super IO Configuration

Use this item to show the information of Super IO configuration.

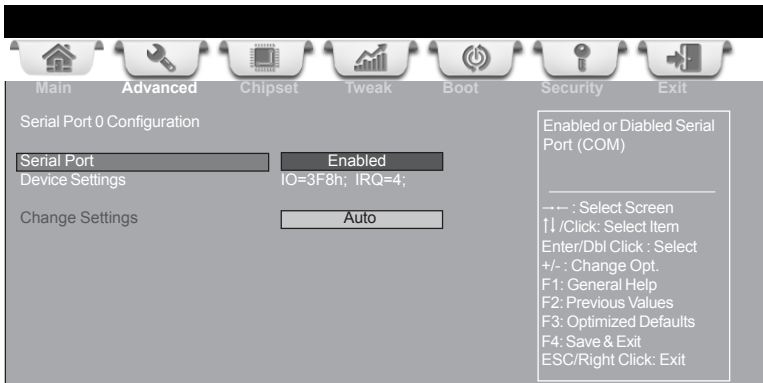


### Serial IO Chip (Fintek F71808)

This item shows the information of the super IO chip.

#### ►Serial Port 0 Configuration

This item shows the information of the super IO chip.



#### Serial Port (Enabled)

This item allows you to enable or disable serial port.

#### Device Settings (IO=3F 8h; IRQ=4)

This item shows the information of the device settings.

#### Change Settings (Auto)

Use this item to change device settings.

Press <Esc> to return to the Super IO Configuration page.

Press <Esc> to return to the Advanced Setup page.

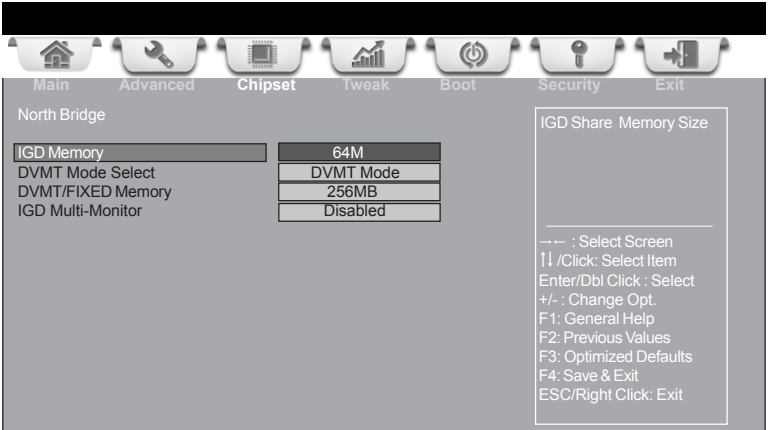
Chipset Setup Page

The chipset menu items allow you to change the settings for the North Bridge chipset, South Bridge chipset and other system.



►North Bridge

Scroll to this item and press <Enter> and view the following screen:



IGD Memory (64M)

This item shows the information of the IGD (Internal Graphics device) memory.

DVMT Mode Select (DVMT Mode)

This item allows you to select the DVMT operating mode.

DVMT/FIXED Memory (256MB)

When set to Fixed Mode, the graphics driver will reserve a fixed position of the system memory as graphics memory, according to system and graphics requirements.

### IGD Multi-Monitor (Enabled)

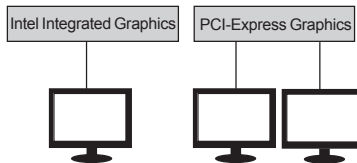
This item enables or disables IGD(Internal Graphics device) multi-monitor.

Press <Esc> to return to the Chipset Setup page.

### Multi-Monitor technology

Multi-Monitor technology can help you to increase the area available for programs running on a single computer system through using multiple display devices.

It is not only to increase larger screen viewing but also to improving personal productivity.

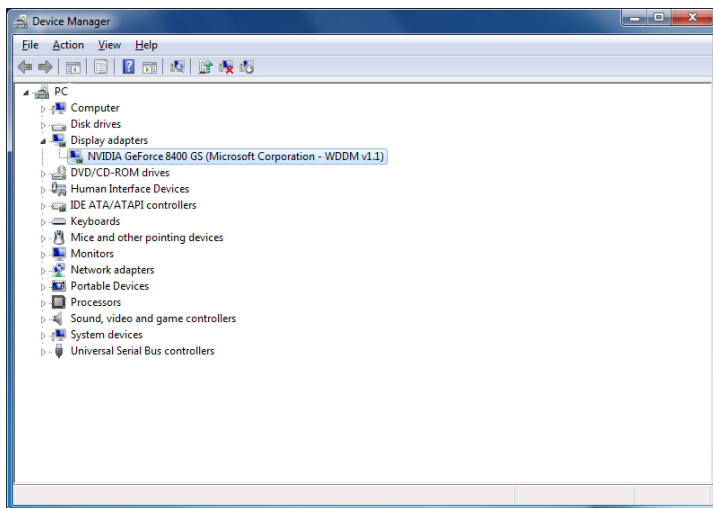


*Please note that Multi-Monitor technology supports up to three monitors: one Intel integrated Graphics and one or two PCI-Express graphics devices under Windows 7.*

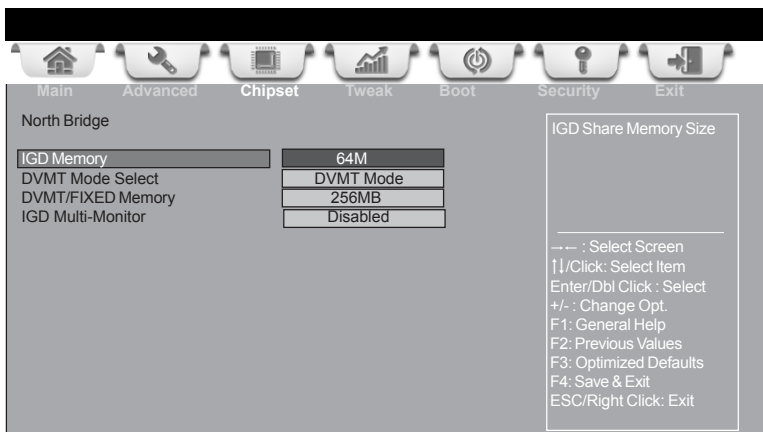
Step 1. Insert PCCHIPS drives DVD to run Auto setup or browse the DVD to install Intel chipset drivers, VGA and sound drivers.(If you want know the detail information, please refer to chapter 4.)



Step 2. Install all the drivers of PCI-Express graphic cards. Click the Browse CD item, then appears the following screen. Select the driver you want to install(e.g NVIDIA GeForce 8400 GS(Microsoft Corporation-WDDM v1.1)) and double click it.

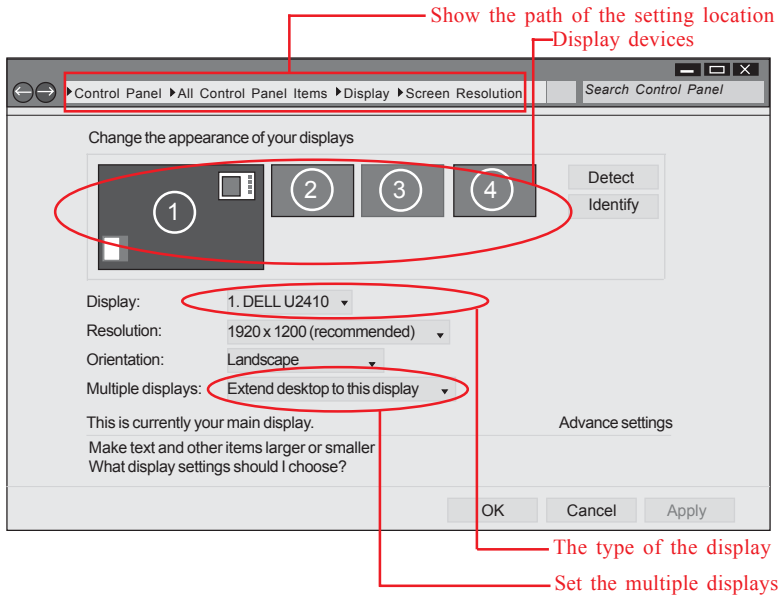


Step 3. Enable IGD Multi-Monitor from BIOS. In the following BIOS screen, please set IGD Multi-Monitor to [Enabled].

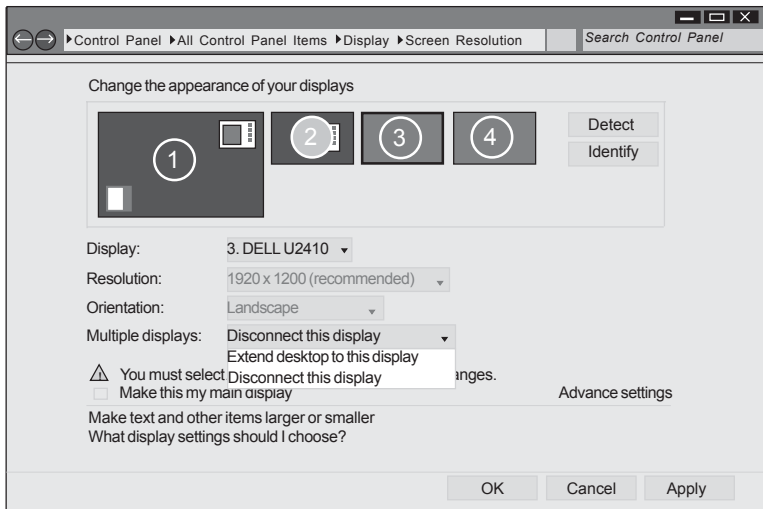


Step 4. Change the appearance of your displays under Windows 7.

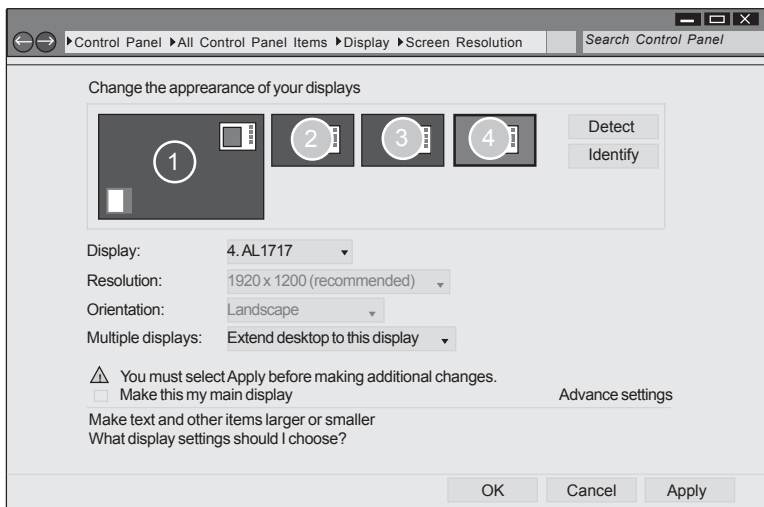
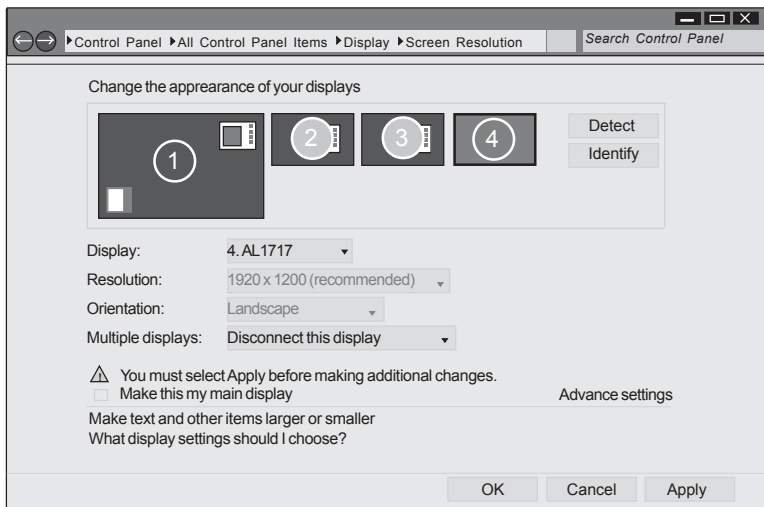
1. Enter the Control Panel menu, select the Display in the All Control Panel Items and click the Screen Resolution, then appears the following screen.



2. Select display devices, set the multiple displays option and to extend desktop for display “Multi-Monitor technology”.

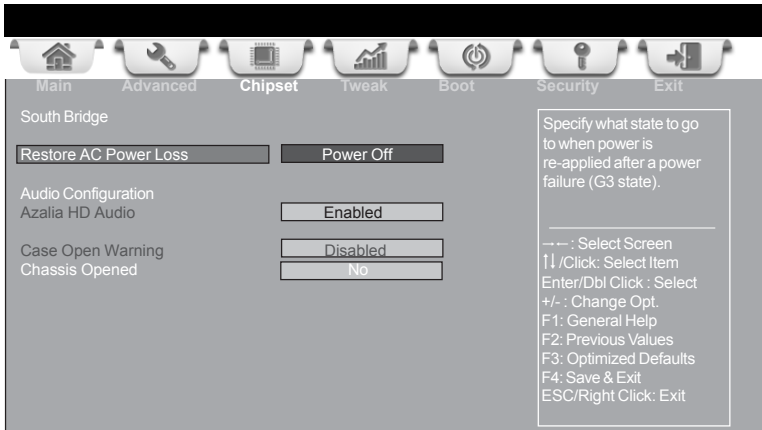






### ►South Bridge

Scroll to this item and press <Enter> to view the following screen:



#### **Restore AC Power Loss (Power Off)**

This item enables your computer to automatically restart or return to its operating status.

#### **Azalia HD Audio (Enabled)**

This item enables or disables Azalia HD audio.

#### **Case Open Warning (Disabled)**

This item enables or disables the warning if the case is opened up, and the item below indicates the current status of the case.

#### **Chassis Opened (No)**

This item indicates whether the case has been opened.

Press <Esc> to return to the Chipset Setup page.

► **ME Subsystem**

Scroll to this item and press <Enter> to view the following screen:



**ME Version (7.0.4.1197)**

This item shows the ME version.

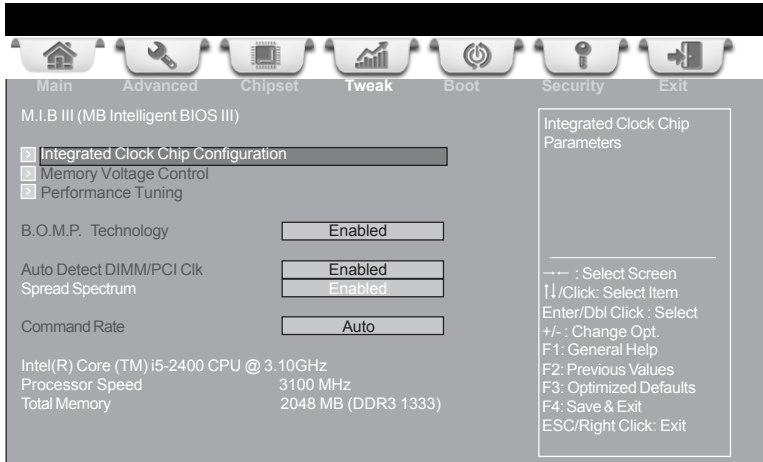
**ME Subsystem (Enabled)**

This item allows you to enable or disable ME subsystem.

Press <Esc> to return to the Chipset Setup page.

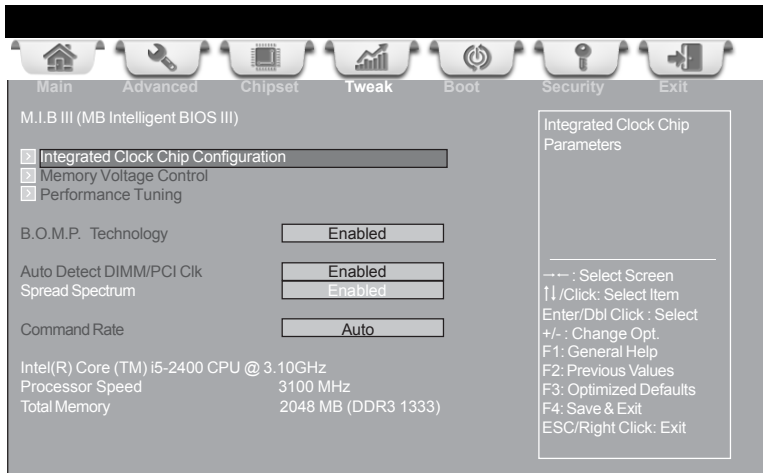
## Tweak Setup Page

This page enables you to set the clock speed and system bus for your system. The clock speed and system bus are determined by the kind of processor you have installed in your system.



### ► Integrated Clock Chip Configuration

Scroll to this item to view the following screen:



### ICC Over-Clocking Lib Version (7.0.0.29)

This item shows the ICC over-clocking lib version.

**Number of ICC Profiles (N/A)**

This item shows number of ICC profiles.

**Current ICC Profiles Index (N/A)**

This item shows current ICC profiles index.

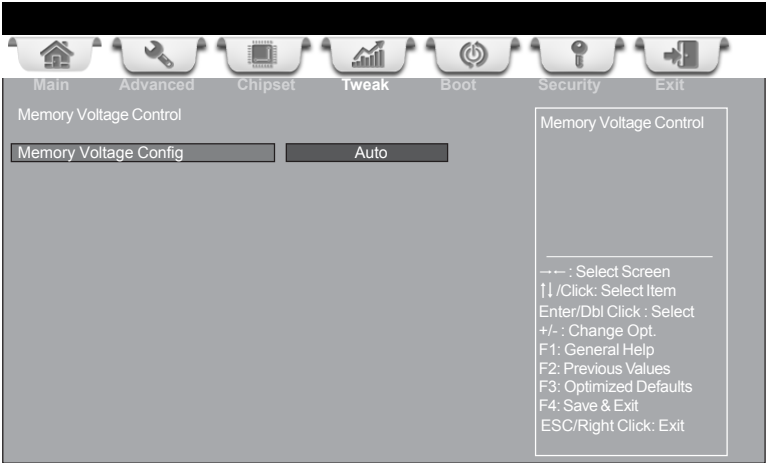
**ICC Enable (Disabled)**

This item allows you to enable or disable current ICC.

Press <Esc> to return to the Tweak Setup page.

**►Memory Voltage Control Configuration**

Scroll to this item to view the following screen:



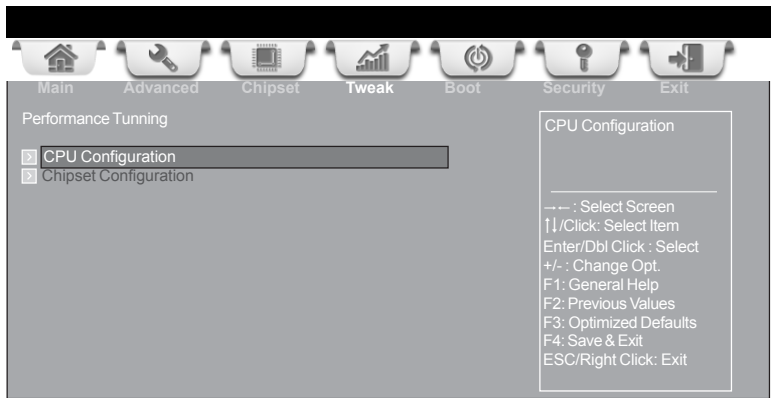
**Memory Voltage Config (Auto)**

This item allows users to select memory voltage config.

Press <Esc> to return to the Tweak Setup page.

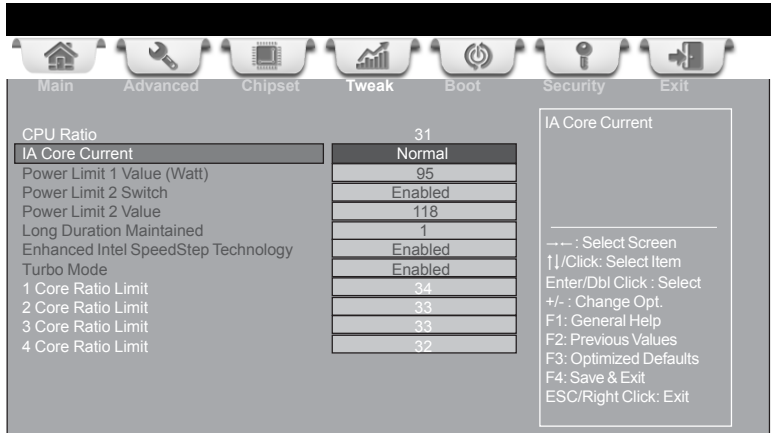
►Performance Tunning

Scroll to this item to view the following screen:



►CPU Configuration

Scroll to this item to view the following screen:



**CPU Ratio (31)**

This item allows users to control non turbo CPU ratio.

**IA Core Current (Normal)**

Use this item to control CPU Current Limit. This is for Turbo mode.

**Power Limit 1 Value(Watt) (95)**

Use this item to control the limit of the TDP. This is for Turbo mode.

**Power Limit 2 Switch (Enabled)**

Use this item to control the Power Limit 2. This is for Turbo mode.

### **Power Limit 2 Value (118)**

Use this item to control Power Limit 2. PL2 provides an upper limit of the TDP excursions. This is for Turbo mode.

### **Enhanced Intel SpeedStep Technology (Enabled)**

This item allows users to enable or disable the EIST(Enhanced Intel SpeedStep Technology).

### **Long Duration maintained (1)**

Use this item to control the time window over PL1 value should be maintained. This is for Turbo mode.

### **Turbo Mode (Enabled)**

This item allows you to control the Intel Turbo Boost Technology.

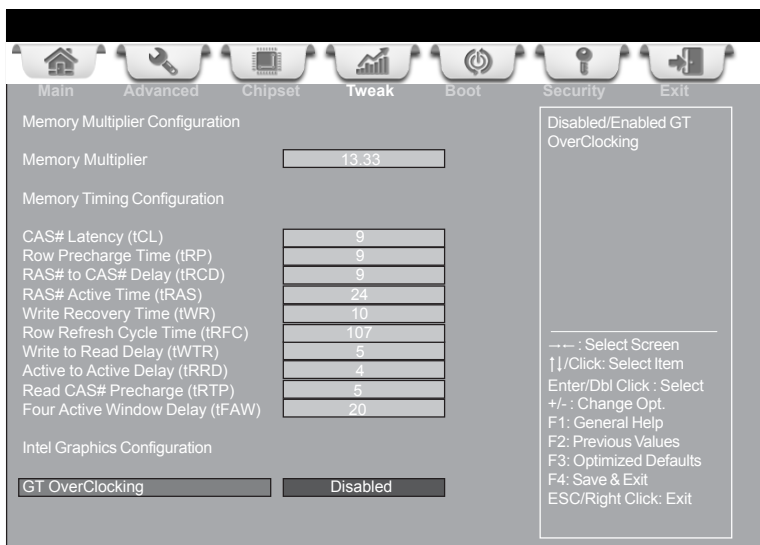
### **1/2/3/4-Core Ratio (34/33/32/31)**

This item shows the Core Ratio limit value.

Press <Esc> to return to the Performance Tunning page.

## ► Chipset Configuration

Scroll to this item to view the following screen:



### **Memory Multiplier (13.33)**

This item shows the value of Memory Multiplier.

### **CAS#Latency(tcl) (9)**

This item determines the operation of DDR SDRAM memory CAS(column address strobe). It is recommended that you leave this item at the default value. The 2T setting requires faster memory that specifically supports this mode.

### **Row Precharge Time(trP) (9)**

This item specifies Row precharge to Active or Auto-Refresh of the same bank.

### **RAS# to CAS# Delay(trCD) (9)**

This item specifies the RAS# to CAS# delay to Rd/Wr command to the same bank.

### **RAS# Active Time(tRAS) (24)**

This item specifies the RAS# active time.

### **Write Recovery Time (tWR) (10)**

This item specifies the write to read delay.

### **ROW Refresh Cycle Time (tRFC) (107)**

This item specifies the Row refresh cycle time.

### **Write to Read Delay (tWTR) (5)**

This item specifies the write to read delay.

### **Active to Active Delay(tRRD) (4)**

This item controls the ACTIVE bank x to ACTIVE bank y delay in memory clock cycles.

### **Read CAS# Precharge (tRTP) (5)**

This item controls the Read to PRECHARGE delay for memory devices, in memory clock cycles.

### **Four Active Window Delay(tFAW) (20)**

This item controls the four bank activate time in memory clock cycles.

### **GT OverClocking (Disabled)**

This item allows you to control the internal GFX Turbo mode.

Press <Esc> to return to the Performance Tunning page.

Press <Esc> to return to the Tweak Setup page.

### **B.O.M.P Technology (Enabled)**

This item allows users to enable or disable B.O.M.P technology. This function can run safe setting to setup menu when system boot fail 3 times.

### **Auto Detect DIMM/PCI Clk (Enabled)**

When this item is enabled, BIOS will disable the clock signal of free DIMM/PCI slots.



### **Spread Spectrum (Enabled)**

If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic Interference) generated by the system.

### **Command Rate (Auto)**

This item allows users to set command rate.

### **Intel(R) Core(TM) i5-2400 CPU 0 @ 3.10GHz**

This is display-only field and displays the information of the CPU installed in your computer.

### **Processor Speed (3000MHz)**

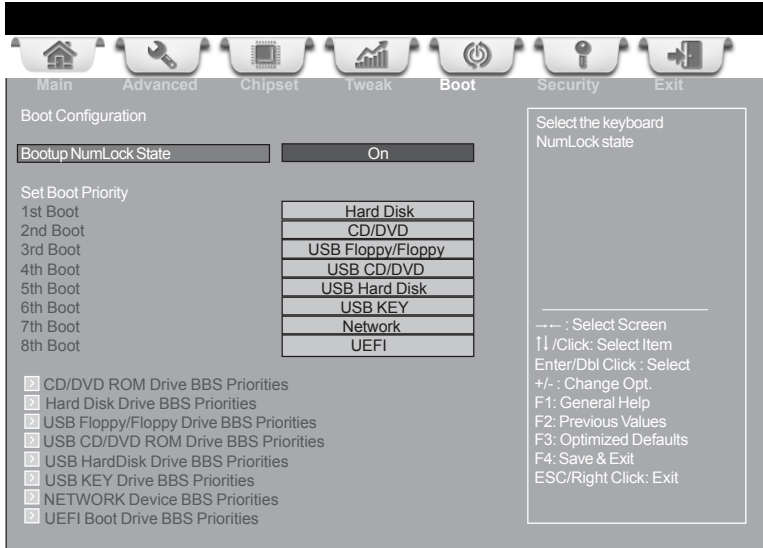
This item shows the CPU speed.

### **Total Memory (2048MB(DDR3 1333))**

This item shows the total memory of DDR3.

## Boot Setup Page

This page enables you to set the keyboard NumLock state.



### Bootup NumLock State (On)

This item enables you to select NumLock state.

### 1st/2nd/3rd/4th/5th/6th/7th/8th Boot

These items set the system boot order.

### CD/DVD ROM Drive BBS Priorities

This item enables you to specify the sequence of loading the operating system from the installing CD/DVD ROM drives.

### Hard Disk Drive BBS Priorities

This item enables you to specify the sequence of loading the operating system from the installing hard disk drives.

### USB Floppy/Floppy Drive BBS Priorities

This item enables you to specify the sequence of loading the operating system from the installing USB floppy/floppy drives.

### USB CD/DVD ROM Drive BBS Priorities

This item enables you to specify the sequence of loading the operating system from the installing USB CD/DVD ROM drives.

### USB Hard Disk Drive BBS Priorities

This item enables you to specify the sequence of loading the operating system from the installing USB hard disk drives.

### **USB KEY Drive BBS Priorities**

This item enables you to specify the sequence of loading the operating system from the installing USB KEY drives.

### **NETWORK Device BBS Priorities**

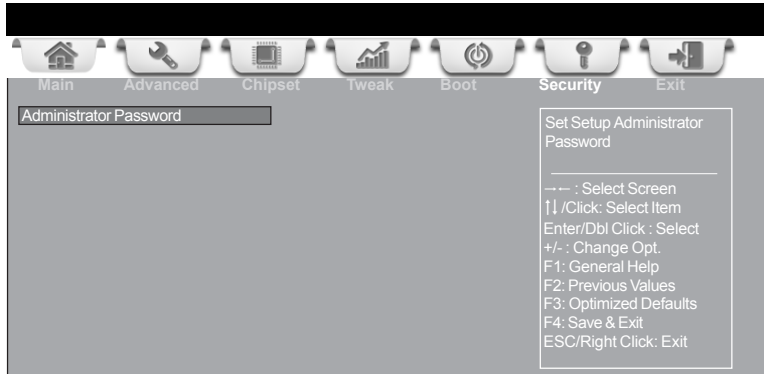
This item enables you to specify the sequence of loading the operating system from the installing network devices.

### **UEFI Boot Drive BBS Priorities**

This item enables you to specify the sequence of loading the operating system from the installing UEFI Boot drives.

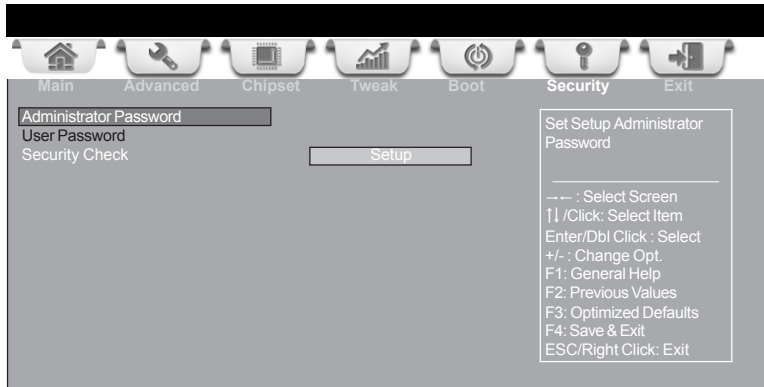
## Security Setup Page

This page enables you to set setup administrator password and user password.



### Administrator Password

Press <Enter> to setup administrator password.



### User Password

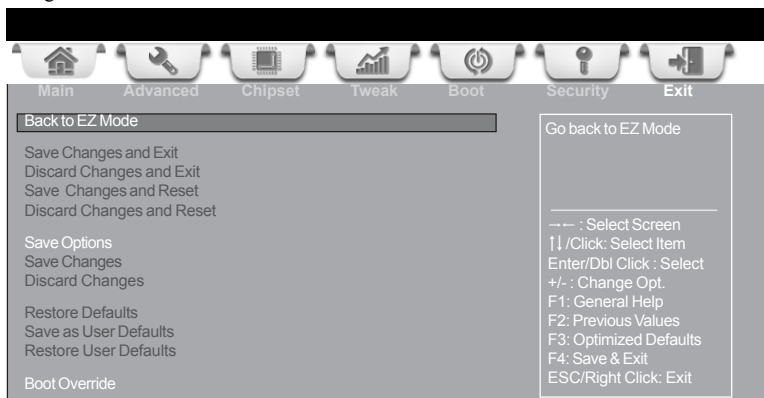
Press <Enter> to setup administrator password. (This item only show when administrator had been set.)

### Security Check (Setup)

This item let you select when you need to check the password. (This item only show when administrator had been set.)

### Exit Setup Page

This page enables you to exit system setup after saving or without saving the changes.



#### Back to EZ Mode

This item enables you to back to EZ mode.

#### Save Changes and Exit

This item enables you to save the changes that you have made and exit.

#### Discard Changes and Exit

This item enables you to discard any changes that you have made and exit.

#### Save Changes and Reset

This item enables you to save the changes that you have made and reset.

#### Discard Changes and Reset

This item enables you to discard any changes that you have made and reset.

#### Save Options

This item enables you to save the options that you have made.

#### Save Changes

This item enables you to save the changes that you have made.

#### Discard Changes

This item enables you to discard any changes that you have made.

#### Restore Defaults

This item enables you to restore the system defaults.

#### Save as User Defaults

This item enables you to save the changes that you have made as user defaults.

#### Restore User Defaults

This item enables you to restore user defaults.

#### Boot Override

Use this item to select the boot device.

### Updating the BIOS

You can download and install updated BIOS for this motherboard from the manufacturer's Website. New BIOS provides support for new peripherals, improvements in performance, or fixes for known bugs. Install new BIOS as follows:

- 1 If your motherboard has a BIOS protection jumper, change the setting to allow BIOS flashing.
- 2 If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.)
- 3 Prepare a bootable device or create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
- 4 Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the bootable device.
- 5 Turn off your computer and insert the bootable device in your computer. (You might need to run the Setup Utility and change the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the bootable device first.)
- 6 At the C:\ or A:\ prompt, type the Flash Utility program name and the file name of the new BIOS and then press <Enter>. Example: AFUDOS.EXE 040706.ROM
- 7 When the installation is complete, remove the bootable device from the computer and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten. The computer will restart automatically.

This concludes Chapter 3. Refer to the next chapter for information on the software supplied with the motherboard.

## Chapter 4 Software & Applications

### Introduction

This chapter describes the contents of the support DVD-ROM/CD-ROM that comes with the motherboard package.

The support DVD-ROM/CD-ROM contains all useful software, necessary drivers and utility programs to properly run our products. More program information is available in a README file, located in the same directory as the software.

To run the support disk, simply insert the disk into your DVD-ROM/CD-ROM drive. An Auto Setup screen automatically pops out, and then you can go on the auto-installing or manual installation depending on your operating system.

If your operating system is Windows XP/Vista/7, it will automatically install all the drivers and utilities for your motherboard.

### Installing Support Software

- 1 Insert the support DVD-ROM/CD-ROM disc in the DVD-ROM/CD-ROM drive.
- 2 When you insert the DVD-ROM/CD-ROM disc in the system DVD-ROM/CD-ROM drive, the disk automatically displays an Auto Setup screen.
- 3 The screen displays four buttons of **Setup**, **Utilities**, **Browse CD** and **Exit** on the right side, and three others **Drivers**, **Utilities** and **Information** at the top. Please see the following illustration.



The **Setup** button runs the software auto-installing program as explained in next section.

The **Utilities** button allows you to install the application software and other software utilities that are available on the disk.

The **Browse CD** button is a standard Windows command that you can check the contents of the disc with the Windows file browsing interface.

The **Exit** button closes the Auto Setup window. To run the program again, reinsert the DVD-ROM/CD-ROM disc in the drive; or click the DVD-ROM/CD-ROM driver from the Windows Explorer, and click the Setup icon.

The **Utilities** button brings up a software menu. It shows the bundled software that this mainboard supports.

The **Information** brings you to the Install Path where you can find out path names of software driver.

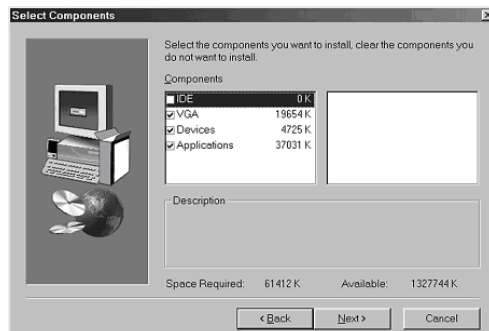
### Auto-Installing under Windows XP/Vista/7

If you are under Windows XP/Vista/7, please click the **Setup** button to run the software auto-installing program while the Auto Setup screen pops out after inserting the support DVD-ROM/CD-ROM:

- 1 The installation program loads and displays the following screen. Click the **Next** button.



- 2 Select the items that you want to setup by clicking on it (the default options are recommended). Click the **Next** button to proceed.



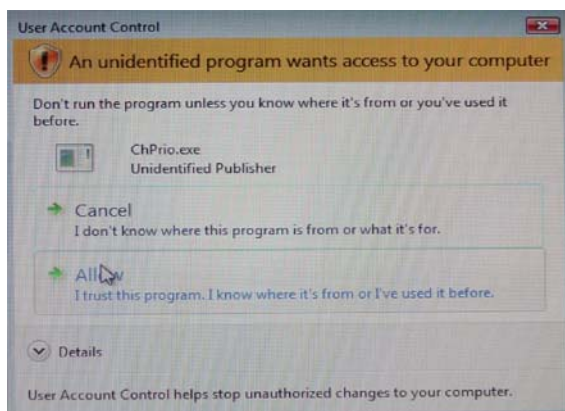


- 3 The support software will automatically install.

Once any of the installation procedures start, software is automatically installed in sequence. You need to follow the onscreen instructions, confirm commands and allow the computer to restart as few times as needed to complete installing whatever software you selected. When the process is finished, all the support software will be installed and start working.



Windows Vista/7 will appear below UAC (User Account Control) message after the system restart. You must select “Allow” to install the next driver. Continue this process to complete the drivers installation.



### Bundled Software Installation

All bundled software available on the DVD-ROM/CD-ROM is for users' convenience. You can install bundled software as follows:

- 1 Click the **Utilities** button while the Auto Setup screen pops out after inserting the support DVD-ROM/CD-ROM.
- 2 A software menu appears. Click the software you want to install.
- 3 Follow onscreen instructions to install the software program step by step until finished.

## Chapter 5 Trouble Shooting Tips

### **Start up problems during assembly**

After assembling the PC for the first time you may experience some start up problems. Before calling for technical support or returning for warranty, this chapter may help to address some of the common questions using some basic troubleshooting tips.

#### **a) System does not power up and the fans are not running.**

1. Disassemble the PC to remove the VGA adaptor card, DDR memory, LAN, USB and other peripherals including keyboard and mouse. Leave only the motherboard, CPU with CPU cooler and power supply connected. Turn on again to see if the CPU and power supply fans are running.
2. Make sure to remove any unused screws or other metal objects such as screwdrivers from the inside PC case. This is to prevent damage from short circuit.
3. Check the CPU FAN connector is connected to the motherboard.
4. For Intel platforms check the pins on the CPU socket for damage or bent. A bent pin may cause failure to boot and sometimes permanent damage from short circuit.
5. Check the 12V power connector is connected to the motherboard.
6. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.

#### **b) Power is on, fans are running but there is no display**

1. Make sure the monitor is turned on and the monitor cable is properly connected to the PC.
2. Check the VGA adapter card (if applicable) is inserted properly.
3. Listen for beep sounds. If you are using internal PC speaker make sure it is connected.
  - a. continuous 3 short beeps : memory not detected
  - b. 1 long beep and 8 short beeps : VGA not detected

### **c) The PC suddenly shuts down while booting up.**

1. The CPU may experience overheating so it will shutdown to protect itself. Ensure the CPU fan is working properly.
2. From the BIOS setting, try to disable the Smartfan function to let the fan run at default speed. Doing a Load Optimised Default will also disable the Smartfan.

### **Start up problems after prolong use**

After a prolong period of use your PC may experience start up problems again. This may be caused by breakdown of devices connected to the motherboard such as HDD, CPU fan, etc. The following tips may help to revive the PC or identify the cause of failure.

1. Clear the CMOS values using the CLR\_CMOS jumper. Refer to CLR\_CMOS jumper in Chapter 2 for Checking Jumper Settings in this user manual. When completed, follow up with a Load Optimised Default in the BIOS setup.
2. Check the CPU cooler fan for dust. Long term accumulation of dust will reduce its effectiveness to cool the processor. Clean the cooler or replace a new one if necessary.
3. Check that the 12V power & ATX connectors are fully inserted into the motherboard connectors. Make sure the latches of the cable and connector are locked into place.
4. Remove the hard drive, optical drive or DDR memory to determine which of these component may be at fault.

### **Maintenance and care tips**

Your computer, like any electrical appliance, requires proper care and maintenance. Here are some basic PC care tips to help prolong the life of the motherboard and keep it running as best as it can.

1. Keep your computer in a well ventilated area. Leave some space between the PC and the wall for sufficient airflow.
2. Keep your computer in a cool dry place. Avoid dusty areas, direct sunlight and areas of high moisture content.
3. Routinely clean the CPU cooler fan to remove dust and hair.
4. In places of hot and humid weather you should turn on your computer once every other week to circulate the air and prevent damage from humidity.
5. Add more memory to your computer if possible. This not only speeds up the system but also reduces the loading of your hard drive to prolong its life span.
6. If possible, ensure the power cord has an earth ground pin directly from the wall outlet. This will reduce voltage fluctuation that may damage sensitive devices.

## Basic Troubleshooting Flowchart

